

Chapter 1

Supersonic Airfoils

1.1 General Shapes of Supersonic Airfoils

It was shown that at supersonic velocity when shock waves are generated a drag occurs, shock drag, which depends on the losses across the shock, and that exists also for perfect flow. The shock drag, if the extent of the shock and of the other condition does not change, increases if the variation of entropy across the shock increases, as occurs when the inclination β of the shock increases, and is a maximum when the shock is normal shock.

This consideration indicates that in order to reduce the shock drag of supersonic profiles, strong shock